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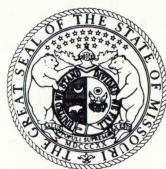
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1991 ANNUAL REPORT



EIERA

Environmental Improvement and Energy Resources Authority





G. Tracy Mehan III
Director
Missouri Department of Natural Resources

Dear Citizens:

During the past 19 years, the Environmental Improvement and Energy Resources Authority (EIERA) has been a leader, innovator, and catalyst in promoting sound environmental and energy management activities.

The EIERA has the ability to anticipate and focus on the state's most vital needs and successfully complete those tasks. This effort has provided tremendous support to the Missouri Department of Natural Resources as it works to protect and manage Missouri's environment in a responsible manner.

As an example, the Authority's five-member board and its staff have developed low-cost financial packages to address construction needs for water systems and wastewater treatment facilities in more than 100 communities.

Additionally, grants and project funds have assisted other Missouri communities through the development of household hazardous waste projects, curbside recycling programs, educational programs and materials, training seminars, and research projects.

The EIERA's resources and programs have benefitted the state on a wide spectrum — from staff assistance for local officials sponsoring a recycling fair in Lebanon, to production of an energy conservation video for junior high students.

I would like to take this opportunity to applaud the EIERA board and staff whose efforts have had a positive impact on every region in the state.

Very truly yours,

DEPARTMENT OF NATURAL RESOURCES

A handwritten signature in black ink that reads "G. Tracy Mehan III". The signature is written in a cursive, flowing style.

G. Tracy Mehan III
Director



The Missouri Botanical Garden is a green and tranquil oasis in south St. Louis. The Drum Bridge, one of the beautiful settings in the internationally-famous garden, is found in Seiwa-En, the Japanese Garden of "pure, clear harmony, and peace."

The 1991 Annual Report of the Environmental Improvement and Energy Resources Authority is published for the citizens of Missouri, and as a public record of the programs administered during fiscal year July 1, 1990, through June 30, 1991.

EIERA

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Cover: Pickle Creek carves its way through the 3,271-acre Hawn State Park. The creek is a habitat for more than 20 species of fish, including the rare silverjaw minnow. Hawn State Park, which contains lush stands of native pine and hardwoods, is about 20 miles west of Ste. Genevieve on Highway 144.

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This annual report is printed on recycled paper. 

A Message from the Chairman



In past years, state officials, and business and community leaders have addressed energy and environmental issues as separate concerns. Today, I think we understand that energy and the environment are closely linked and bonded in a relationship that affects our lifestyle and behavior.

Annually, Missourians spend nearly 11 percent of their personal income on energy costs; this amounts to about \$9.7 billion dollars.

Last year, one of the state's top priorities was development of an energy plan. In January, the Missouri Environmental Improvement and Energy Resources Authority (EIERA), with funding support from the Department of Natural Resources' Division of Energy, initiated a statewide energy study.

A 14-member energy advisory committee was formed and, in March, consultants were selected to conduct the study, compile the research, and ensure public input.

This comprehensive study will evaluate Missouri's current energy uses, project future needs, pinpoint alternatives, and recommend a plan and policy direction. The final report will be released during the first quarter of 1992.

The municipal composting project has been well received by community leaders and local officials. The EIERA, with funding support from the Division of Energy, has coordinated development of municipal composting sites in Columbia and St. Ann. EIERA staff and consultants have also assisted local officials in Lee's Summit, Kansas City, Hazelwood, Oakville and Jefferson City; staff also conducted a two-day composting workshop in cooperation with University of Missouri Extension. Additionally, 250,000 informative composting brochures were printed and made available to homeowners and

organizations. A 185-page technical assistance manual detailing composing procedures was developed and distributed to local officials.

In the area of education, the Authority awarded a grant to the Educational Satellite Network (ESN) to produce two videos targeted at junior high students in Missouri schools. The recycling video proposed resource recovery projects and activities that students could develop in their schools and communities. The energy video examined efficiency measures and challenged young people to take responsibility and become more aware of energy issues.

The Household Hazardous Waste Project (HHWP), one of the most successful programs the EIERA has funded, has enhanced its statewide impact through an affiliation with University Extension — the University of Missouri and Lincoln University. This affiliation will provide additional research capabilities and educational materials to communicate information about the management of household products and chemicals.

This annual report symbolizes the beginning of my first year as chairman of the Authority. On behalf of the board and staff, I want to take this opportunity to thank former Chairman Bill Clark and former Vice Chairman Dwight Douglas, who were members of the Authority for the past four years. They served with distinction and offered their knowledge and expertise to the citizens of Missouri. They will be missed.

Sincerely,

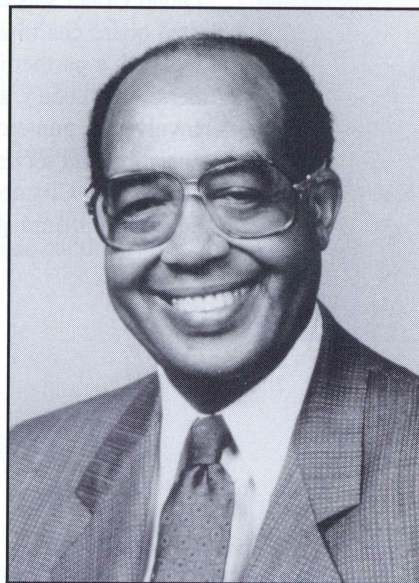
ENVIRONMENTAL
IMPROVEMENT
AND ENERGY RESOURCES
AUTHORITY

David R. Goller
Chairman

A TRIBUTE

The Missouri Environmental Improvement and Energy Resources Authority acknowledges the contributions of former members William H. Clark and Dwight Douglas.

Chairman Clark, through his professionalism, leadership, and knowledge, has earned the respect and admiration of business, government, and community leaders across the state and region. Mr. Clark's ability to pinpoint and address key issues and his support of new initiatives has brought recognition to the EIERA as a leader in the successful development of financial programs and environmental and energy projects. He has served the citizens of Missouri with distinction.



William H. Clark



H. Dwight Douglas

Vice-Chairman Douglas, through his leadership and expertise on legal matters, environmental issues, and local government politics and policies, has set the technical standard for other EIERA board members. Mr. Douglas' untiring efforts have allowed the Authority to establish and enhance a number of programs that will protect and preserve Missouri's environment for many years to come. His commitment and dedication to the citizens of Missouri has been an outstanding example of public service.

Members of the EIERA



David R. Goller, *Chairman*

David Goller was appointed to the Authority in August 1987 by Gov. John Ashcroft. He was elected board chairman in 1991 and formerly served as secretary-treasurer from 1987 to 1991.

Goller is a partner in the Jefferson City law firm of Goller & Kuebler PC. He is a member of the American, Missouri, and Cole County bar associations.

Involved in numerous community activities, Goller is a director for the Riverview Cemetery Association and serves on the Exchange National Bank board. He is a former board member for the Jefferson City Chamber of Commerce, Memorial Community Hospital, American Red Cross, and the Cole County Planning Commission.

Kenneth S. Kranzberg, *Vice Chairman*

Kenneth S. Kranzberg was appointed to a three-year term by Gov. John Ashcroft.

Since 1978, Kranzberg has been president of the St. Louis-based Northwestern Bottle Co. Northwestern is the largest distributor of glass and plastic bottles in the United States, with offices and warehouses in 12 cities. He is past president and board chairman for the National Association of Container Distributors.

A graduate of the College of William and Mary in Virginia, Kranzberg also served in the U.S. Army as a second lieutenant.

Kranzberg is active in civic and community activities and served as a board member for several St. Louis-area companies and charitable institutions. He, his wife, and two daughters live in St. Louis County.



John W. Boyd, *Treasurer*

John Boyd was appointed to a two-year term by Governor John Ashcroft in September 1991. Authority members elected him treasurer the same month.

In 1976, Boyd was a key figure in the formation of Medical Defense Associates, a medical malpractice insurance company. Since 1988, he has marketed insurance and securities through Boyd Insurance and Financial Services.

A past member and former chairman of the Missouri Health and Education Facilities Authority, Boyd also chaired the Committee to Preserve Health Care and served on the Commission for the Future of Services to Children and Families.

Boyd earned a degree in accounting and business from Springfield's Draughon Business College. He also studied accounting and business administration at Southwest Missouri State University.

Boyd and his wife have two children and reside in Clever.

Frederick H. Riesmeyer, II, Secretary

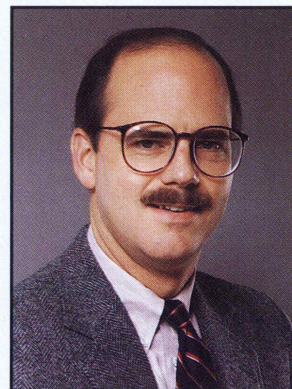
Frederick Riesmeyer is an attorney in the Kansas City law firm of Spradley & Riesmeyer.

Riesmeyer was appointed to a three-year term by Governor John Ashcroft. He was elected by Authority members to serve as secretary.

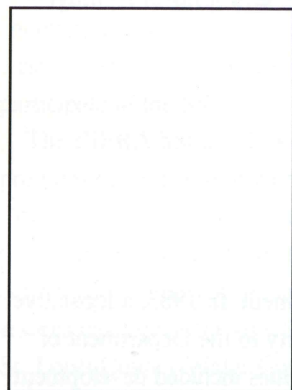
A political science major, Riesmeyer earned a degree from the University of Denver and received a Juris Doctorate degree from the University of Missouri-Kansas City.

A published writer, Riesmeyer co-authored an article for the **Oklahoma Law Review**, "The Development of Alternative Energy Sources: A Legal Policy Analysis."

Riesmeyer is active in several community organizations and is a member of the Truman Medical Center Board of Governors and board president of the Sherwood Center for autistic children. He is a member of the Kansas City, Missouri, and American Bar associations.



Fifth Authority Member, To Be Appointed



EIERA Staff



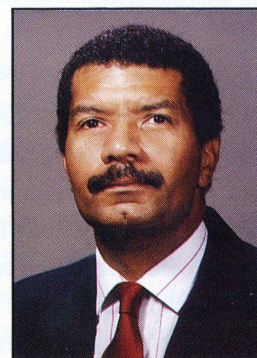
Stephen M. Mahfood
Director



Marie Colvin
Administrative Assistant



Tom Welch
*Asst., Planning &
Project Development*

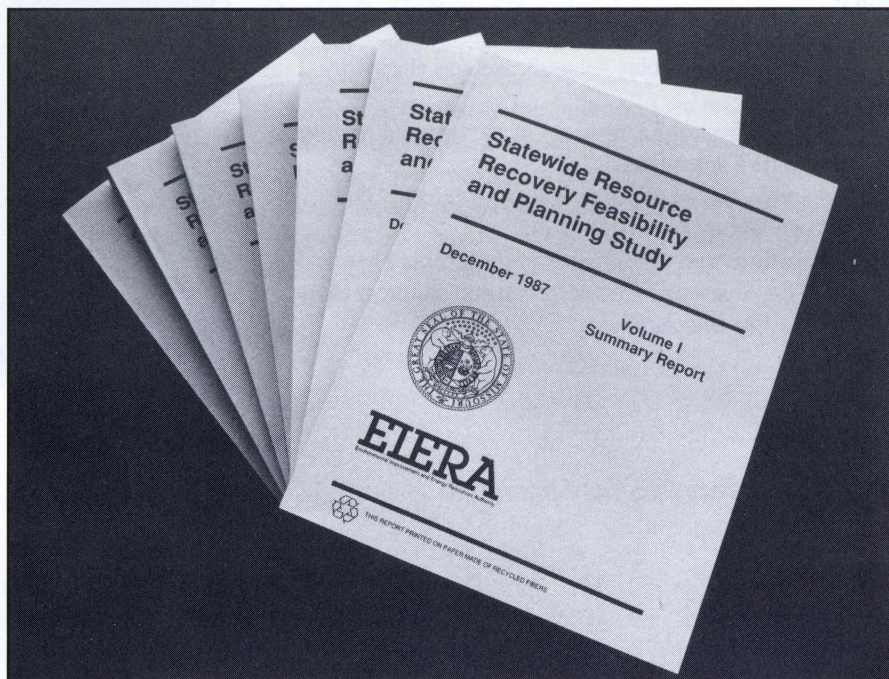


Kenneth Seeney
*Asst., Planning &
Public Affairs*



Pamela Mueller
Secretary

The EIERA — An Overview of its History and Purpose



The seven-volume EIERA resource recovery feasibility and planning study was the basis for the passage of several solid waste management laws. These laws advanced Missouri's efforts in the areas of market development, composting, recycling, and landfill tonnage fees.

The Authority is completely self-supporting, and the fees it charges to applicants for financing are sufficient to meet EIERA's operating expenses. EIERA does not receive state funding or appropriations from the Missouri General Assembly.

The Environmental Improvement and Energy Resources Authority (EIERA) is an independent agency created in 1972 by the Missouri legislature. The Authority's mandate is to provide low- or no-cost financing for projects that would reduce, control, and prevent environmental pollution, and to encourage research and development of energy alternatives while promoting economic development.

Initially, the EIERA was housed in the Bureau of Consumer Affairs, Regulation, and Licensing, which is now the

Department of Economic Development. In 1983, a legislative amendment transferred the Authority to the Department of Natural Resources; new responsibilities included development of energy resources and a hazardous waste management plan.

Although the EIERA's traditional method of financing has been through issuance of tax-exempt-interest industrial revenue bonds, the Authority's mandate is broad. Its financial options for project support include tax-exempt bonds, low-cost loans and construction financing, and assistance for conducting studies and providing technical assistance in the field.

The EIERA authorized its first bond project in December 1973 and since that date has issued tax-exempt bonds, notes, and commercial paper in excess of \$1.9 billion. The bonds are repayable solely by the entities that construct the projects; the state of Missouri does not guarantee repayment. Since the Authority issues the bonds and because the bonds meet certain requirements in the Internal Revenue Code, interest from the bonds is exempt from federal income taxes.

Historically, the EIERA has attempted to offer financial packages and develop low-cost financing programs that would be attractive and beneficial to Missouri companies,

organizations and municipalities. This assistance has helped communities and companies comply with local, state, and federal regulations.

The EIARA has developed a number of innovative programs and projects. In 1987, the EIARA, the Missouri Clean Water Commission, the Department of Natural Resources, and the U.S. Environmental Protection Agency (EPA) began to lay the foundation for Missouri's State Revolving Fund (SRF).

Missouri officials knew that direct federal grants for water projects would be phased out and a new program had to be implemented.

The SRF, administered by individual states, in cooperation with the EPA, provides low-cost loans to Missouri cities, counties, and districts for construction of sewage and wastewater treatment projects. Springfield was the first city to participate in the SRF.

The EIARA has developed another financial assistance program in cooperation with the Missouri Public Service Commission (PSC). This program offers either tax exempt bond financing or low-cost loans to private water companies for construction of new water systems in Missouri. The PSC then assures repayment through the rate review process. The St. Louis County Water Company and the Missouri Cities Water Company were the first participants to receive financial assistance under this new program.

Additional programs and projects that have been funded or developed include:

- A project grant for the development of a solar-powered vehicle;
- A project grant to expand elementary school curriculums for energy and environmental issues;
- An outreach program that provides technical assistance to rural communities to develop and operate wastewater treatment projects and solid waste management systems;
- A statewide survey to determine public opinion on solid-waste management issues;
- An education and training program for Missouri businesses that encourages waste minimization and energy conservation; and
- A pilot recycling project in Kansas City.



At "Falling Spring," water streams from the face of a cave at the rate of 130,000 gallons per day. The area, which is situated on national forest land and open to the public, is about 15 miles south of Winona in Oregon County.

An additional and ongoing task of the EIARA is to develop alternative methods of financing for environmental programs and energy-development projects.

Financing may be obtained for solid-waste, sewage, and water-pollution control projects and facilities. Other projects that are eligible for assistance may focus on energy development through the use of wind, water, and solar power, synthetic fuels, and energy produced from Missouri coal, heavy oil, and tar sands. Other requirements are established as programs develop.

One important advantage of EIARA programs is that financial assistance can be arranged through low-cost alternatives, thereby substantially reducing project costs.

Because of the legislative mandate to provide assistance, the EIARA does not perform a regulatory role. The Authority's financial programs and assistance are, therefore, available only upon request. The Authority is completely self-supporting, and the fees it charges to applicants for financing are sufficient to pay the Authority's operating expenses.



At a Kansas City press conference last year, EIERA director Stephen Mahfood, G. Tracy Mehan III, director of the Department of Natural Resources, and Bob Jackson, director of the Division of Energy, outline the purpose and goals of the statewide energy study. The state's energy plan and policy recommendations will be released during the first quarter of 1992.

The Year in Review

This past year, the Missouri Environmental Improvement and Energy Resources Authority (EIERA) has supported several projects that relate to energy management and research.

The EIERA continues to develop educational programs, and water quality and waste reduction projects. The Authority director has provided key testimony at the state and national level, on economic, energy, and environmental issues. Additionally, the Authority has responded to more than 350 public inquiries for assistance and information.

New Projects

One of Missouri's top priorities is to develop a state plan to address energy efficiency and management. The EIERA received a **\$299,000** grant from the Natural Resources' Division of Energy to coordinate a statewide energy study.

The EIERA selected Economic Research Associates, Inc., the Metropolitan Energy Center, and Strategy Resource, Inc., to conduct the study,

compile information and coordinate public input. The final report will be issued during the first quarter of 1992.

A 14-member energy advisory committee was also assembled to oversee the study; committee members were selected from the university community, environmental groups, utility and electric companies, and agricultural and business organizations. Legislators, and city and state officials also serve on the committee.

On January 1, 1992, state law will ban yard wastes from Missouri landfills. In an effort to assist local officials in managing yard wastes, the EIERA, with funding support from the Missouri Division of Energy, coordinated the development of municipal composting sites in Columbia and St. Ann. Staff members also assisted city officials in Lee's Summit, Kansas City, Hazelwood, Oakville, and Jefferson City. EIERA staff and consultants developed an informative composting brochure and a detailed technical manual to assist homeowners and local officials in complying with the yard waste ban.

The EIERA awarded a **\$24,000** grant to the Educational Satellite Network (ESN) to produce two educational videos for junior high students. The 16-minute recycling tape and the 22-minute energy video will provide excellent background material for teachers to discuss environmental issues.

The EIERA in cooperation with the Missouri Division of Energy, cosponsored "Operation Paper to Trees" and "Energyfest." These projects were community-oriented and increased awareness of energy efficiency and resource recovery.

The Authority also approved a project refinancing from a past issuance. The Noranda Aluminum, Inc., New Madrid, refinanced a previous issue in the amount of **\$45 million** to purchase pollution control equipment and upgrade waste management facilities.

Ongoing Projects

The nationally-acclaimed Household Hazardous Waste Project (HHWP) has expanded its statewide program. HHWP is

now affiliated with the University Extension office and has access to additional research materials and educational resources. This fiscal year, project assistance was provided in the amount of **\$132,000**.

The State Revolving Fund (SRF), established in 1990, provides financial assistance to cities, counties, and districts for construction of wastewater treatment facilities.

This past year bond financings were issued to two cities and a district. Springfield's **\$32 million** project will provide system improvements at the Southwest Wastewater Treatment Plant and the James River Lift Station. A **\$9 million** project in Lee's Summit increased capacity at the Scruggs Road pump station. The St. Louis Metropolitan Sewer District, one of the largest municipal bodies in the midwest, received **\$68 million** to complete construction on several wastewater projects in the St. Louis area.

This past year, in cooperation with the Missouri Public Service Commission, the EIARA financed two projects through a new assistance program. This program offers low-cost loans to private water companies to construct new water systems.

A project financing for the St. Louis County Water Company was approved for **\$25 million** and will be used for system improvements and new equipment at several St. Louis County sites. The Missouri Cities Water Company, based in St. Charles, received a **\$5 million** loan for system improvements in central and eastern Missouri.



On the John Williams farm, about nine miles southwest of Hartville, an animal waste collection unit nears completion. A five-year project, supported by the EIARA and other state and federal agencies, helps dairy farmers in the Woodsfork Watershed protect water quality and prevent soil erosion through the control and management of animal wastes.

A **\$99,000** grant was awarded to the Missouri Assistance Project (MAP). MAP provides technical and management assistance to rural communities in an effort to develop efficient wastewater treatment facilities and solid waste management systems. This past year, more than 89 communities received technical assistance.

In Lebanon, MAP staff members met with citizens, businessmen, and local officials during planning sessions for a one-day recycling fair; more than 500 people attended the fair held at Boswell Park. The MAP staff also advised local officials in the development of a pilot curbside recycling project; more than 100 recycling containers were distributed to area homes.

The 16-page **Reclaim Reporter** has been MAP's official publication for two years. The Reporter is distributed to 4,500 subscribers and provides information on recycling, resource recovery, and solid waste management.

In 1988, a program was initiated by

Wright County officials to help dairy farmers reduce soil erosion and protect water quality by employing waste management techniques and constructing waste collection systems.

Three years ago, the EIARA awarded a **\$70,095** grant to the Wright County Soil and Water Conservation District to fund demonstration sites and purchase pumping and mechanical equipment. More than eight animal waste collection systems have been completed; approximately 14 collection systems are planned at farms in the Woods Fork Watershed during the five-year project. The watershed extends across both Wright and Webster counties.

In other community activities, the Authority awarded a **\$10,000** grant to Neosho's Crowder College to further development of Star II, a solar-powered vehicle. This grant was in addition to a **\$52,000** grant awarded Crowder during the previous fiscal year.

Solar-powered vehicles developed by the Crowder staff and students have been nationally recognized and highly



EIERA and the Missouri Division of Energy cosponsored "Operation TREE — Paper to Trees." More than 16,000 trees were given to Missourians who traded three-foot stacks of newsprint. The project netted 850 tons of newsprint, which were processed into 64,000 bags of cellulose insulation. Nathanael Greene Park in Springfield was one of nine statewide distribution sites; a project volunteer helps a local resident load a tree into his car.

successful in United States and world competitions. Last year, Star II finished second in its class and eighth overall in the second World Solar Challenge in Australia.

The Missouri Waste Exchange Service provides direct technical assistance and a computerized listing of wastes available for exchange to Missouri manufacturers. The Missouri service is affiliated with the Industrial Material Exchange Service in Springfield, Illinois.

Conferences and Seminars

The EIERA staff continues to meet with Kansas City officials and the executive staff of the National Recycling Coalition, to plan activities and programs for the 1995 National Recycling Congress and Exposition. Kansas City will host the 1995 Congress, which is the largest convention in the United States devoted to recycling and waste reduction issues. The annual meeting attracts 2,500 delegates.

The Missouri Waste Control Coalition (MWCC) is one of the most active environmental organizations in the state.

Staff director Stephen Mahfood served as MWCC vice president and chaired the awards committee. Staff member Kenneth Seeney chaired the publicity committee. Mahfood and Seeney were key planners for the 18th annual Missouri Waste Management Conference sponsored by the MWCC. Governor John Ashcroft and William Ruckelshaus, board chairman of Browning-Ferris Industries, were the keynote speakers at the conference, attended by more than 600 people.

The Conference on Partnerships for Economic Growth and the Environment is an effort to blend economic interests with environmental concerns. The Authority contributed staff time to this key conference which was attended by 150 participants.

Staff Activities

The director and staff have committed a considerable amount of time to initiating the statewide energy study. This time commitment will increase in the coming months as recommendations and policies are formulated.

The staff has dedicated time and resources to implementing the recommendations of the 1987 statewide solid waste study. The passage of Senate Bill 530 created an avenue for several solid waste study recommendations to be enacted.

Staff director Stephan Mahfood also participated in several meetings of the Global Climate Change Task Force, chaired by State Rep. Karen McCarthy. This committee is seeking a solution to global climate change and ozone depletion problems that could affect the state and region. The committee is also charged with developing a long-term energy plan for the state based on developing alternatives and promoting energy efficiency.

The staff participated in other activities related to environmental management.

1. Appointment of the director to several councils:

- Anthony Commission on Public Finance

- Board of the Midwest Recycling Coalition
- Vice President, Missouri Waste Control Coalition and Awards Committee Chairman
- Chairman, Policy Task Force, Department of Natural Resources Strategic Planning Initiative

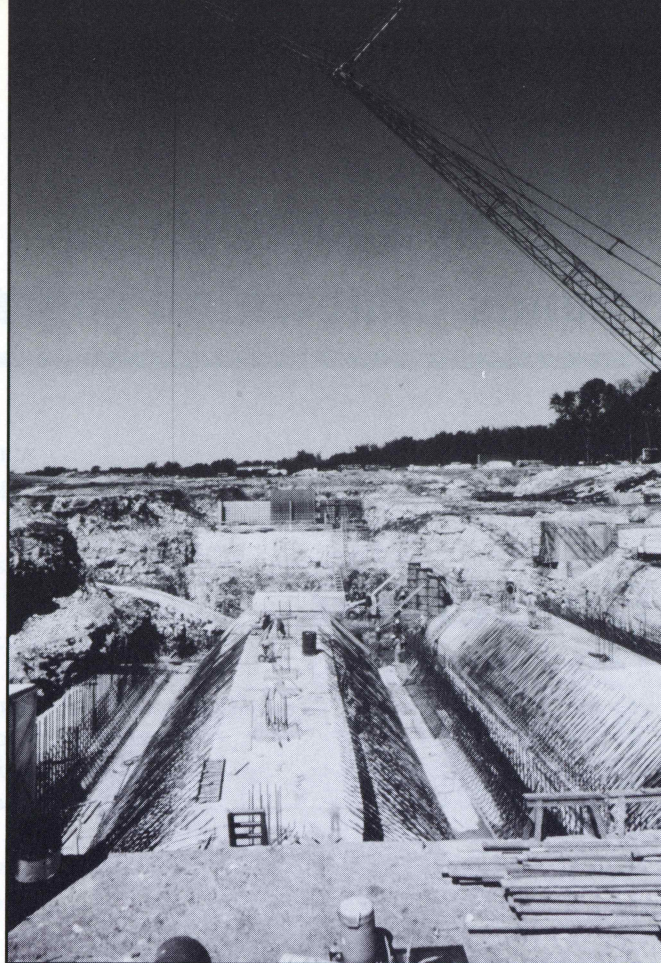
2. Staff participation in:

- National Recycling Coalition
- Great Lakes Recycling Officials
- National Waste Minimization Roundtable
- Consortium of Hazardous Waste Siting Authorities
- Women in Energy
- Professional Secretaries International
- Public Relations Society of America (PRSA)
- Mid-Missouri Chapter, PRSA, and
- National Association of Government Communicators

Additionally, Marie Colvin, administrative assistant, was elected

president of the Mid-Missouri Chapter of Women in Energy, Inc.

Kenneth Seeney, assistant for planning and public affairs, received an Award of Excellence from the Communicators of Mid-America for his article "Down in the Dumps," a 2,500-word magazine feature on illegal dumping.



Last year, Springfield's \$32 million Southwest Treatment Plant was the first project approved under the State Revolving Fund.

Upcoming Activities

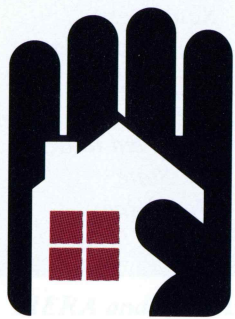
In the coming year, the EIERA will concentrate on several projects:

- coordinating the statewide energy study and its implementation;
- implementing the market development recommendations of Senate Bill 530;
- administering the State Revolving Fund (SRF) program in cooperation with the Missouri Clean Water Commission;
- expanding the household hazardous waste project to statewide status;
- supporting and implementing the Wright County soil and water conservation demonstration project;
- administering a financial assistance program for private water companies; and
- offering technical advice to rural communities to assist in the development of efficient wastewater treatment and solid-waste management systems.



More than 500 people attended a one-day recycling fair at Lebanon's Boswell Park. The Missouri Assistance Project staff helped local officials and community leaders plan and organize the successful event.

HHWP Expands Statewide Program



Household Hazardous Waste Project

The Household Hazardous Waste Project (HHWP) is one of the most successful activities the EIERA has funded. In two years, HHWP expanded from a local community group to a regional organization. Today, the staff offers a statewide program that educates citizens about the safe management and disposal of household wastes and chemicals.

Today, American homes contain more hazardous wastes and products than the chemistry labs of 100 years ago.

In 1986, the Missouri Environmental Improvement and Energy Resources (EIERA) established the Household Hazardous Waste Project (HHWP). Based in Springfield, HHWP began as a community outreach program to educate citizens about the safe use, storage, and disposal of household hazardous materials.

"In its second year, the project was so successful that it was expanded into a regional organization serving a 23-county area in southwest Missouri," said Kenneth Kranzberg, EIERA vice chairman. "After the fourth year of continued success, we decided to implement a statewide program."

In an effort to create a more comprehensive state network, the EIERA and HHWP formed a partnership with University Extension — the University of Missouri and Lincoln University. In the partnership, EIERA provides technical and financial assistance to further emphasize the need for hazardous waste management and environmental protection; University Extension offers an educational network and research-based information; and HHWP contributes an experienced staff and local resources as a community-based educational organization.

"This cooperative arrangement will give Missourians access to more educational programs and provide a better

understanding of the hazards posed by household products and chemicals," said Jerry Wade, acting director of HHWP. Wade is an associate professor in the University of Missouri-Columbia department of community development and coordinated the transition to University Extension administration.

Marie Steinwachs, HHWP associate director, will manage day-to-day operations at the HHWP's office in Springfield. The Springfield staff also includes Sarah Dewey, program developer, and Nelda Zehner, office manager.

Materials developed by the staff include household waste collection information packets, summary sheets on community organizing and planning, guides for media relations presentations, learning activities for secondary school students, and fact sheets.

Since 1987, HHWP has answered more than 8,500 requests for information, conducted more than 200 presentations, and trained 350 people, who in turn have reached an audience of 20,000.

Last year, the nationally-acclaimed HHWP was one of 21 organizations in the United States to be presented a Searching for Success National Environmental Achievement Award in the category of Hazardous Waste Reduction and Recycling. Also, HHWP was honored by the Friends of the United Nations Environmental Programme (FUNEP) with a FUNEP 500 Award.

Municipal Composting in Missouri

In Missouri, depending on the region or community, leaves, grass and tree limbs account for as much as 18 percent of the solid waste stream,” said David Goller, EIERA chairman. “If leaves and grass are managed properly, the volume of waste being trucked to Missouri’s landfills can be reduced significantly.”

On January 1, 1992, state law will ban leaves and yard wastes from Missouri landfills. Local officials are concerned about implementing systems to manage yard wastes.

The EIERA, with funding support from the Department of Natural Resources’ Division of Energy, has assisted in the development of municipal composting sites in Columbia and St. Ann. “The St. Ann site has been described as one of the 10 best operations in the nation,” Goller said.

EIERA printed 250,000 copies of an informative brochure titled **Homeowners Composting Guide: How to Manage Yard Wastes**. “There has been a great demand for the brochures from communities and organizations,” said Tom Welch, EIERA projects coordinator.

Welch and project consultants have also advised local officials in Lee’s Summit, Kansas City, Hazelwood, Oakville, and Jefferson City. Jefferson City officials received 13,000 composting brochures for a city-wide mailing and the Lee’s Summit composting facility received an outstanding achievement award from a state organization.

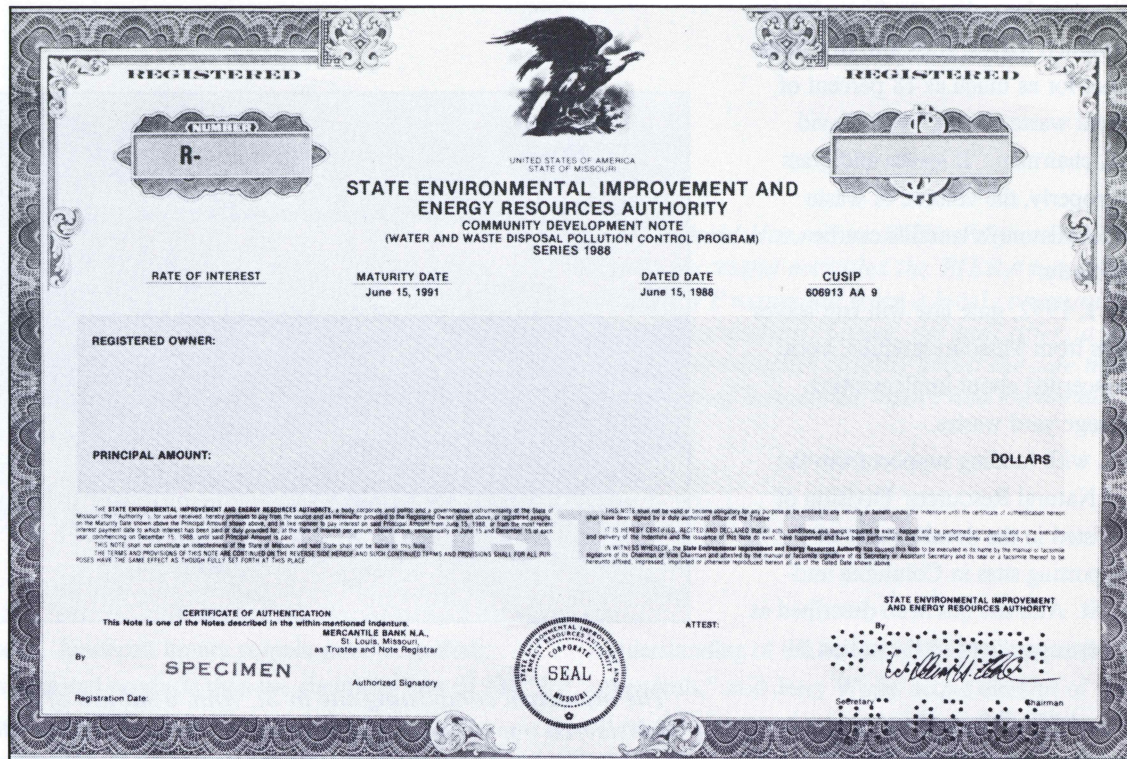
The EIERA staff also published a 185-page booklet titled **Yard Waste in Missouri: A Guidebook for Municipal Decision-Maker**. “These manuals were mailed to local officials to provide additional assistance in managing yard wastes,” Welch said. Also, the Department of Natural Resources has printed a technical bulletin for local governments, **Prohibition of Yard Wastes in Landfills**.



The municipal composting site in St. Ann, a suburb of St. Louis, is considered one of the top 10 facilities in the nation. The facility's low maintenance cost, unique aeration system, and commitment by city officials and on-site personnel, contribute to its success.



EIERA Programs and Financial Services



This is an example of the type of bond issued by the EIERA.

The Environmental Improvement and Energy Resources Authority (EIERA) assists Missouri communities, as well as public and private companies, in financing projects at the lowest possible cost. To meet this objective, the Authority's mandate is broad and includes financing projects through tax-exempt bonds, conducting research projects and studies, and providing technical assistance.

The EIERA can offer assistance through several types of tax-exempt and taxable financing. These programs are regulated by federal and state laws and may consist of issuing **taxable bonds, floating or fixed-rate notes, short-to-intermediate term bonds, and long-term bonds**. Other types of assistance may include **commercial paper and pooled financings**.

In cooperation with the U.S. Environmental Protection Agency (EPA), and other state agencies, the EIERA established the State Revolving Fund (SRF). The SRF provides loan monies to communities and districts for construction of wastewater and sewage-treatment projects.

This past year, in cooperation with the Missouri Public Service Commission, the EIERA developed a new assistance program. This program offers low-cost loans to private water companies to construct new water systems.

Additionally, the EIERA, with input from the Department of Economic Development and the Department of Natural Resources, will coordinate market development monies to expand or support recycling and resource recovery projects. Funding will be either grants or low-cost loans, and amounts will be determined on a case-by-case basis. The market development monies were set aside by the Missouri General Assembly through Senate Bill 530; the monies are generated through landfill tonnage fees.

The EIERA continues to develop alternative financing methods, provide direct loans for feasibility studies, and issue small project grants. Along with direct financial assistance provided at the state level, Missouri's application of the sales/use tax exempt air- and water-pollution control machinery and equipment from sales/use tax liabilities.

In addition to the state's efforts to reduce the cost of environmental compliance, Missouri's private financial institutions are encouraged to give special consideration to loans for pollution-control equipment, facilities, and projects.

Projects Financed in Fiscal Year 1991

Bond or Bond-Related Financings

	<u>Location</u>	<u>Amt. Financed</u>
Metropolitan Sewer District	St. Louis	\$ 68,000,000
Noranda Aluminum (refinancing)	New Madrid	45,000,000
City of Springfield	Springfield	32,650,000
St. Louis County Water Co.	St. Louis	25,000,000
City of Lee's Summit	Lee's Summit	9,965,000
Missouri Cities Water Co.	various locations	4,500,000
TOTAL:		<u>\$184,845,000</u>

Project Grants and Financial Assistance

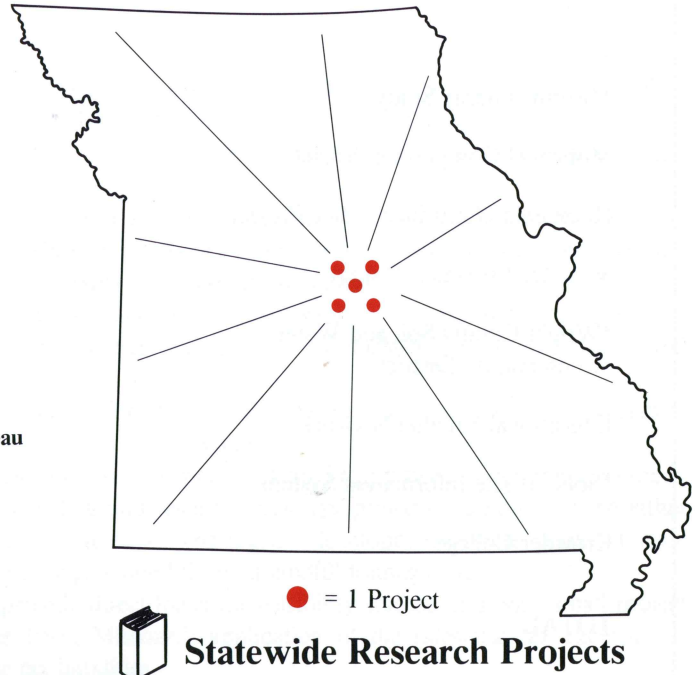
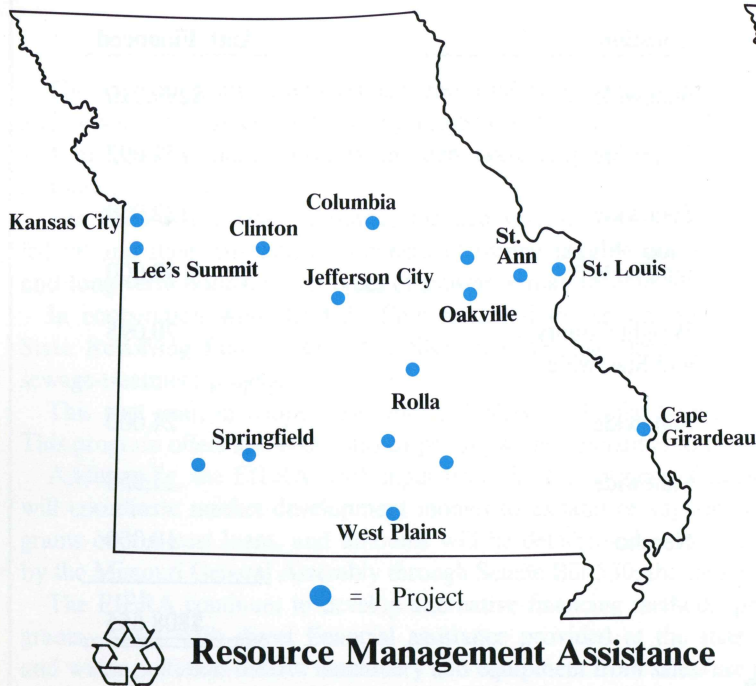
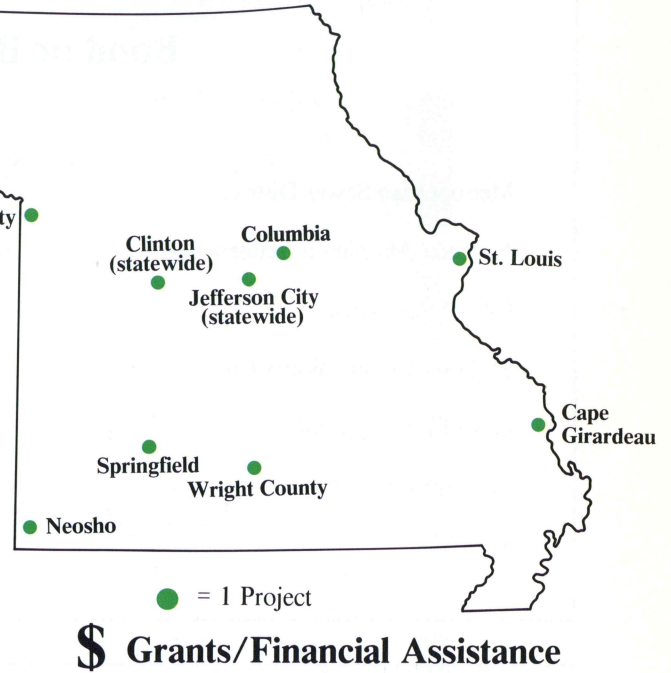
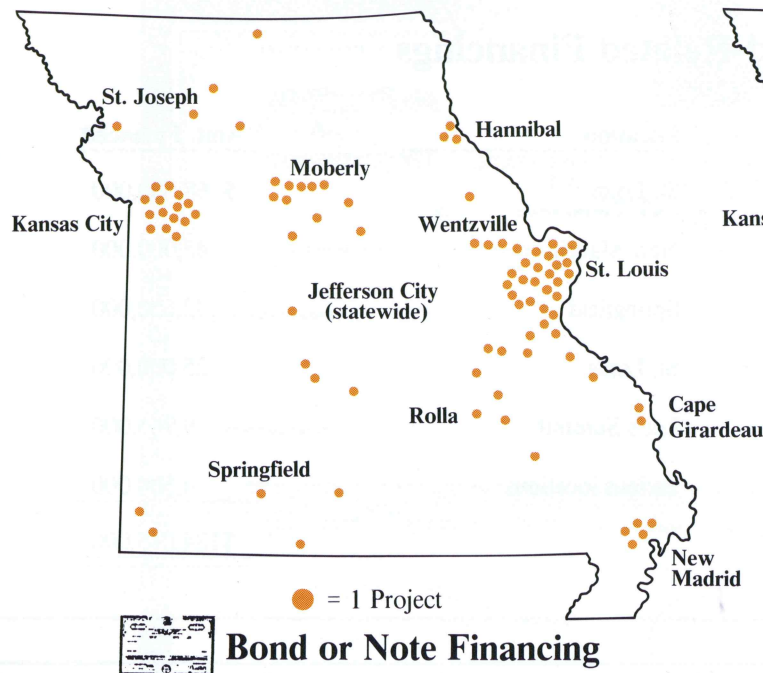
	<u>Location</u>	<u>Amt. Financed</u>
Missouri Energy Study	Statewide	\$299,010
Municipal Composting Project	Statewide	152,692
Household Hazardous Waste Project	Statewide	132,000
Missouri Assistance Project	Statewide	99,000
*Wright County Soil and Water Conservation District	Wright County and Statewide	70,095
Educational Satellite Network	Statewide	24,000
*Solid Waste Information System	Statewide	21,858
Crowder College	Neosho	10,000
TOTAL:		<u>\$808,655</u>

*Project continues to be funded from Fiscal Year 1989

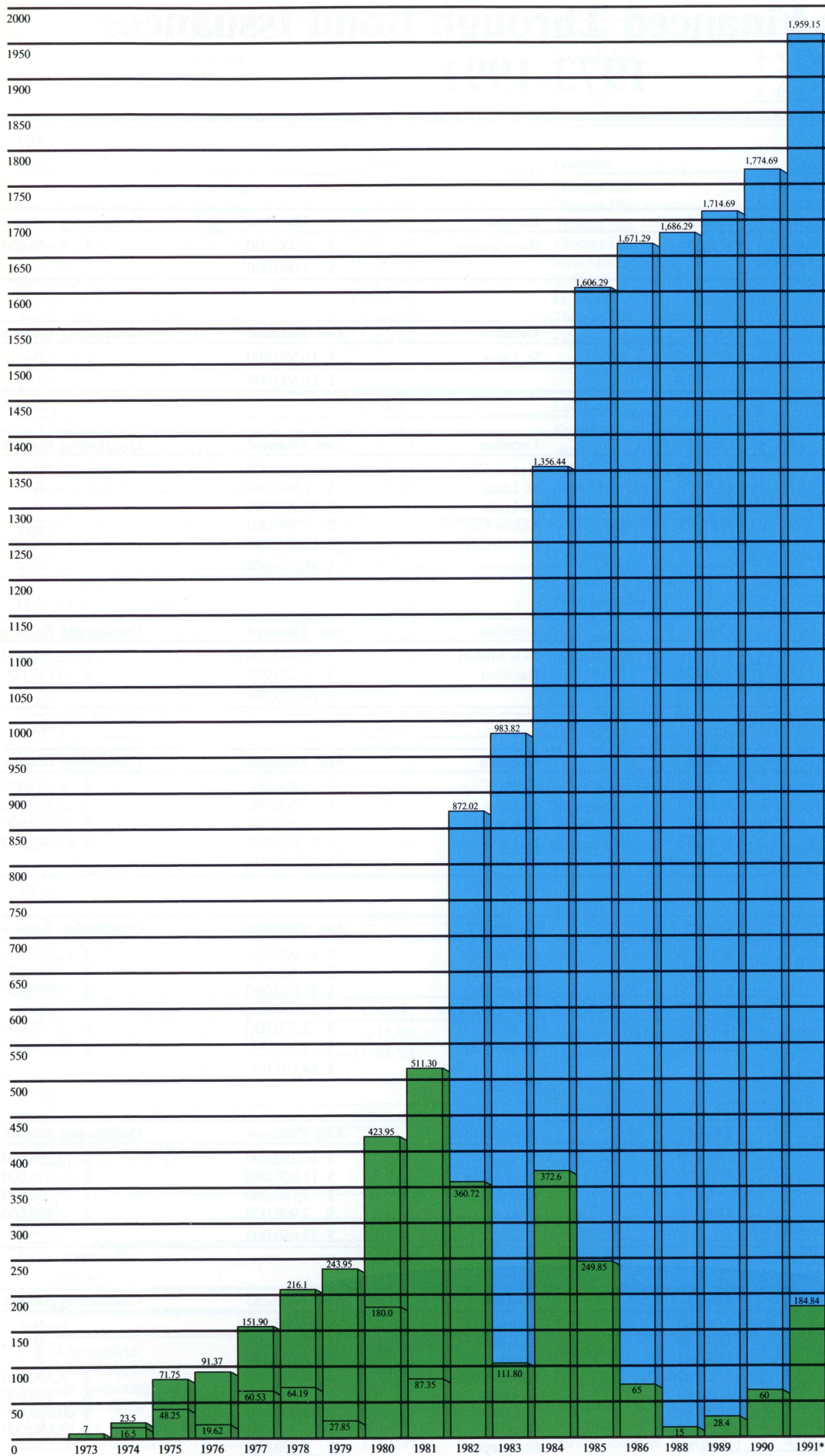
Geographical Locations of Projects Financed

Key

- Bond or Note Financing
- Grants/Financial Assistance
- Resource Management Assistance
- Statewide Research Projects



(\$ millions)



Summary of Bond Issuances

Key

- Annual Figures
- Cumulative Totals

* Encompasses Fiscal Year July 1, 1990 through June 30, 1991

Projects Financed Through Bond Issuances 1973-1991

1973

Project	Closed	Location	Amt. Financed	Outstanding Balance
St. Joe Minerals Corp.	12/20/73	Herculaneum	\$ 7,000,000	\$ 6,470,000
TOTAL:			\$ 7,000,000	

1974

Project	Closed	Location	Amt. Financed	Outstanding Balance
Union Electric Co.	4/25/74	St. Louis	\$ 16,500,000	—0—
TOTAL:			\$ 16,500,000	

1975

Project	Closed	Location	Amt. Financed	Outstanding Balance
Mobay Chemical Corp.	4/18/75	Kansas City	\$ 7,500,000	—0—
Alpha Portland Industries, Inc.	4/29/75	St. Louis	\$ 1,900,000	—0—
Union Electric Co.	6/11/75	St. Louis	\$ 22,000,000	—0—
Mobay Chemical Corp.	9/11/75	Kansas City	\$ 3,500,000	—0—
Armco Corp.	12/17/75	Kansas City	\$ 13,350,000	\$ 13,350,000
TOTAL:			\$ 48,250,000	

1976

Project	Closed	Location	Amt. Financed	Outstanding Balance
Noranda Aluminum Co.	4/27/76	New Madrid	\$ 10,500,000	\$ 10,500,000
American Cyanamid Co.	12/01/76	Hannibal	\$ 9,120,000	\$ 9,120,000
TOTAL:			\$ 19,620,000	

1977

Project	Closed	Location	Amt. Financed	Outstanding Balance
Standard Oil (AMOCO) Co.	2/16/77	Kansas City	\$ 6,450,000	\$ 6,400,000
Great Lakes Carbon Corp.	9/14/77	St. Louis	\$ 7,000,000	\$ 5,920,000
Kansas City Power & Light Co.	10/26/77	Kansas City	\$ 20,000,000	\$ 20,000,000
Union Electric Co.	11/01/77	St. Louis	\$ 27,085,000	\$ 27,085,000
TOTAL:			\$ 60,535,000	

1978

Project	Closed	Location	Amt. Financed	Outstanding Balance
Mobay Chemical Corp.	3/15/78	Kansas City	\$ 11,000,000	\$ 11,000,000
Mobay Chemical Corp.	5/10/78	Kansas City	\$ 825,000	\$ 825,000
Kansas City Power & Light Co.	7/19/78	Kansas City	\$ 31,000,000	\$ 31,000,000
Gulf+Western Industries, Inc.	8/01/78	Cape Girardeau	\$ 11,000,000	—0—
Monsanto Co.	8/3/78	St. Louis	\$ 2,370,000	\$ 2,370,000
Empire District Electric Co.	12/20/78	Kansas City	\$ 8,000,000	\$ 8,000,000
TOTAL:			\$ 64,195,000	

1979

Project	Closed	Location	Amt. Financed	Outstanding Balance
Monsanto Co.	1/09/79	St. Louis	\$ 10,250,000	\$ 10,250,000
Mobay Chemical Corp.	4/18/79	Kansas City	\$ 11,000,000	\$ 11,000,000
American Cyanamid Co.	8/30/79	Hannibal	\$ 3,700,000	\$ 3,700,000
Monsanto Co. (Queeney Plant)	9/06/79	St. Louis	\$ 2,900,000	\$ 2,900,000
TOTAL:			\$ 27,850,000	

1980

Project	Closed	Location	Amt. Financed	Outstanding Balance
Associated Electric Cooperative, Inc.	1/20/80	Thomas Hill	\$ 95,000,000	—0—
Alpha Portland Industries, Inc.	4/29/80	St. Louis	\$ 1,450,000	—0—
River Cement Co.	5/29/80	Festus	\$ 5,700,000	—0—
Standard Oil (AMOCO) Co.	7/22/80	Kansas City	\$ 8,300,000	\$ 8,300,000
Great Lakes Container Corp.	7/24/80	St. Louis	\$ 800,000	\$ 580,000
Union Electric Co.	8/20/80	St. Louis	\$ 60,000,000	\$ 60,000,000
American Cyanamid Co.	9/17/80	Hannibal	\$ 3,450,000	\$ 3,450,000
St. Joseph Light & Power Co.	12/30/80	St. Joseph	\$ 5,300,000	—0—
TOTAL:			\$180,000,000	

1981

Project	Closed	Location	Amt. Financed	Outstanding Balance
Associated Electric Cooperative, Inc.	3/19/81	New Madrid	\$ 36,000,000	—0—
City of Wentzville (GM Plant)	5/08/81	Wentzville	\$ 6,350,000	\$ 6,350,000
Union Electric Co.	10/08/81	St. Louis	\$ 45,000,000	—0—
TOTAL:			\$ 87,350,000	

1982

Project	Closed	Location	Amt. Financed	Outstanding Balance
Associated Electric Cooperative, Inc.	1/02/82	Thomas Hill	\$ 71,000,000	—0—
Associated Electric Cooperative, Inc.	2/21/82	Thomas Hill	\$ 50,000,000	—0—
Associated Electric Cooperative, Inc.	5/04/82	Thomas Hill	\$ 73,000,000	—0—
Associated Electric Cooperative, Inc.	8/18/82	Thomas Hill	\$ 12,000,000	—0—
Noranda Aluminum, Inc.	10/29/82	New Madrid	\$ 45,000,000	—0—
Union Electric Co.	12/15/82	St. Louis	\$ 20,000,000	—0—
Monsanto Co.	12/15/82	St. Louis	\$ 9,325,000	—0—
Associated Electric Cooperative, Inc.	12/16/82	Thomas Hill	\$ 55,900,000	—0—
Grant Anticipation Notes, 1982	12/16/82	various locations	\$ 24,500,000	—0—
TOTAL:			\$360,725,000	

1983

Project	Closed	Location	Amt. Financed	Outstanding Balance
St. Joseph Light & Power Co.	2/24/83	Kansas City	\$ 5,600,000	—0—
Community Development Program, 1983	10/27/83	various municipalities	\$ 18,000,000	—0—
Grant Anticipation Notes, 1983	11/17/83	various municipalities	\$ 44,100,000	—0—
Associated Electric Cooperative, Inc.	11/15/84	New Madrid	\$ 44,100,000	\$ 44,100,000
TOTAL:			\$111,800,000	

1984

Project	Closed	Location	Amt. Financed	Outstanding Balance
Union Electric Co.	6/21/84	St. Louis	\$160,000,000	\$160,000,000
Lone Star Industries, Inc.	7/17/84	Cape Girardeau	\$ 9,100,000	\$ 9,100,000
Monsanto Co.	11/08/84	St. Louis	\$ 2,890,000	\$ 2,890,000
Union Electric Co.	11/14/84	St. Louis	\$ 47,500,000	\$ 47,500,000
Associated Electric Cooperative, Inc.	12/15/84	Thomas Hill	\$153,125,000	\$149,120,000
TOTAL:			\$111,800,000	

1985

Project	Closed	Location	Amt. Financed	Outstanding Balance
Union Electric Co.	4/24/85	St. Louis	\$126,500,000	\$126,500,000
Community Development Program, 1985	6/11/85	various municipalities	\$ 15,000,000	—0—
Grant Anticipation Notes, 1985	7/09/85	various municipalities	\$ 90,000,000	—0—
Chrysler Corp.	10/30/85	St. Louis	\$ 16,000,000	\$ 16,000,000
Mobay Chemical Corp.	12/05/85	Kansas City	\$ 1,600,000	\$ 1,600,000
Reynolds Metals Co.	12/31/85	Kansas City	\$ 750,000	\$ 750,000
TOTAL:			\$249,850,000	

1986

Project	Closed	Location	Amt. Financed	Outstanding Balance
Grant Anticipation Notes, 1986	7/15/86	various municipalities	\$ 65,000,000	—0—
TOTAL:			\$ 65,000,000	

1988

Project	Closed	Location	Amt. Financed	Outstanding Balance
Community Development Note Program, 1988	6/15/88	various municipalities	\$ 15,000,000	—0—
Monsanto Company	11/02/88	St. Louis	\$ 7,950,000	\$ 7,950,000
TOTAL:			\$ 22,950,000	

1989

Project	Closed	Location	Amt. Financed	Outstanding Balance
Grant Anticipation Notes, 1989	3/02/89	various municipalities	\$ 14,850,000	—0—
St. Joseph Light & Power Co.	7/21/89	St. Joseph	\$ 5,600,000	\$ 5,600,000
TOTAL:			\$ 20,450,000	

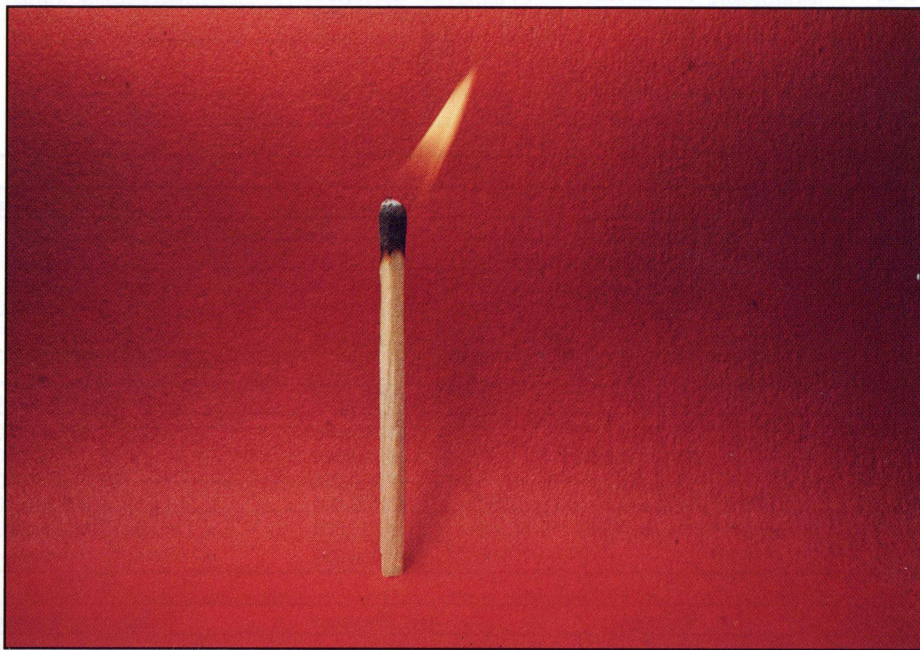
1990

Project	Closed	Location	Amt. Financed	Outstanding Balance
Union Electric Co.	3/03/90	St. Louis	\$ 60,000,000	\$ 60,000,000
TOTAL:			\$ 60,000,000	

1991

Project	Closed	Location	Amt. Financed	Outstanding Balance
City of Springfield	10/25/90	Springfield	\$ 32,650,000	\$ 32,650,000
City of Lee's Summit	11/09/90	Lee's Summit	\$ 9,695,000	\$ 9,695,000
Noranda Aluminum, Inc.	12/07/90	New Madrid	\$ 45,000,000	\$ 45,000,000
Metropolitan Sewer Dist.	1/10/91	St. Louis	\$ 68,000,000	\$ 68,000,000
St. Louis Co. Water Co.	2/12/91	St. Louis	\$ 25,000,000	\$ 25,000,000
MO Cities Water Co.	2/12/91	various locations	\$ 4,500,000	\$ 4,500,000
TOTAL:			\$184,845,000	

Energy and Education



A burning kitchen match is one BTU (British Thermal Unit). Each year, Missourians consume 1,103 trillion BTUs of energy — gasoline, electricity, wood, natural gas, etc. If this used energy were converted into petroleum, it would equal 190 million barrels of oil.

In January, the Missouri Environmental Improvement and Energy Resources Authority (EIERA), with funding support from the Department of Natural Resources' Division of Energy, initiated a comprehensive statewide energy study.

"Each year, Missourians spend about 11 percent of their personal income on energy costs," said EIERA chairman David Goller. "This amounts to about \$9.7 billion and represents a tremendous cost to citizens."

The EIERA formed a 14-member advisory committee to provide input and review the data. Committee members represented government, utilities, business, and agricultural and environmental groups.

Economic Research Associates, Inc., Eugene, Oregon, the Strategy Resource Inc., St. Louis, and the Metropolitan Energy Center, Kansas City, were selected to conduct the study.

The Missouri State Energy Plan will be conducted in two stages. The first stage is a comprehensive study of Missouri's energy use by fuel type, sector, and end-use analysis and also develop projections for future use.

The second stage will center on a series of statewide focus group meetings to review findings of the study. More than 40

meetings are planned on a regional basis; specific interest groups, such as environmental organizations, utilities, and business and trade associations will be invited to participate. The meetings will offer additional input and provide a basis for an implementation plan.

Hopefully, the study will increase awareness of energy issues and expand educational efforts.

Last year, the EIERA contracted with the Educational Satellite Network (ESN) to produce two educational videos for junior high students in Missouri schools.

The 22-minute energy video discussed efficiency and conservation measures and challenged young people to take more responsibility in deciding the future of state's energy resources. The 16-minute recycling tape suggested resource recovery projects and activities that students could develop in their schools and communities.

"The programs have already generated interest among high school students, energy agencies, and educational organizations," said Kenneth Kranzberg, EIERA vice chairman. ESN will uplink the programs to more than 450 Missouri school districts and 12 other states.



The interior of the Climatron, the world's first geodesic-domed greenhouse and the centerpiece of the Missouri Botanical Garden in St. Louis, recreates a tropical rainforest. Attractive displays include numerous tropical plants, waterfalls, and educational materials.

Missouri Department of Natural Resources

State Environmental Improvement and Energy Resources Authority

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